Thrust	Team	Project Title	PI	Project Description
A	MIT Media Lab	An Integrated Architecture for Grounded Intelligence in its Developmental, Experiential, Environmental, and Social Contexts	Cynthia Breazeal	The MIT Media team is focusing on developing a robot whose higher-level cognitive abilities (e.g., memory, language, and reasoning) are a direct result of its physical interactions with the world and other people. Their work focuses on the role of “mirror” neurons, located in the frontal lobe, for imitative learning and the roles of the motor, occipital (visual), and other perceptual cortices in memory organization and retrieval.
A	University of Michigan	Extending the SOAR Cognitive Architecture	John Laird	The Michigan team is focusing on enhancing their current cognitive architecture, Soar, by incorporating a comprehensive memory and learning system that includes the three main types of human memory: 1) procedural memory used to learn skills and routines, 2) semantic memory that contains conceptual and factual knowledge, and 3) episodic memory that allows us to remember specific events about our lives. They are also investigating the effects of emotion on learning, memory, and cognition.
A	Carnegie Mellon University	Developing a Complete and Effective ACT-R Architecture	John Anderson	The CMU team is focusing on extending their current cognitive architecture, ACT-R, to show how visual imagery, language, emotion, and meta-cognition affect learning, memory, and reasoning. Their architectural modules are associated with the processes of the basal ganglia, anterior cingulate, amygdala, and the motor, occipital, prefrontal, and parietal cortices.
A	MIT SAIL	CHIP: Comprehensive Human Intelligence Project	Patrick Winston	The MIT CSAIL team is focusing on combining specialized reasoning modules with multiple layers of thought to create a model capable of multiple levels of cognition and reflection that range from instinctive behavior to socially-conscious thinking.
B	University of Colorado	Biologically-Inspired Cognitive Architecture	Randall O'Reilly	The Colorado team is focusing on developing a tripartite cognitive architecture of three major brain regions: 1) frontal cortex, 2) posterior cortex, and 3) the hippocampal system. Key functional capabilities to be modeled are learning and memory, object recognition, and action selection.
B	Hughes Research Lab	Biologically-Inspired Cognitive Architecture for Integrated Learning, Action and Perception (BICA-LEAP)	Deepak Khosla	The HRL team is working with researchers across several universities to develop an integrated model of the prefrontal cortex, posterior cortex, hippocampus, and basal ganglia that is capable of visual scene understanding, action planning, and language comprehension.
B	University of Maryland	The Maryland Large-Scale Neurocognitive Architecture	James Reggia	The Maryland team is focusing on the roles of prefrontal cortex, motor cortex, auditory cortex, and visual cortical areas in learning to recognize spoken words and to verbally identify perceived objects.
B	Argotic	Cognitive Architecture of the Brain	Anna Tsao	The AlgoTek team is focusing on the roles of the thalamus, cortex, basal ganglia, hippocampus, and amygdala in perception, memory, and speech production.
B	Harvard University	High-Level Vision: Top-Down Processing in Neurally Inspired Architecture	Stephen Kosslyn	The Harvard team is focusing on the visual cortex to understand how the brain recognizes objects.
B	Rutgers University	Interacting Brain Modules for Memory: An Adaptive Representations Architecture	Mark Gluck	The Rutgers team aims to build a model of the hippocampus that captures human learning and memory.
B	Numenta	New Minds Initiative	Dileep George	The Numenta team is focusing on developing a model of the neocortex. Key capabilities to be modeled are learning and memory.
B	George Mason University	A Self-Aware Cognitive Architecture Inspired by Studies of Human Cognition and the Functional Organization of the Brain	Kenneth De Jong	The GMU team is focusing on developing a self-aware cognitive architecture. Major brain components to be modeled include the basal ganglia and hippocampus.
C	Klein Associates	Naturalistic Evaluation of Cognitive Architectures	Gary Klein	The Klein team is focusing on developing a suite of tests that will be used to evaluate the cognitive capabilities of each model.
D	Emory University	Grounding Symbolic Operations in Modality-Specific Processing	Lawrence Barsalou	The Emory team is conducting behavioral and neuroimaging research to test their theory that memory is represented in terms of one's perceptual and motor experiences. This research will provide a better understanding of how concepts and memories are represented in the temporal lobe and how the motor and perceptual cortices contribute to memory representation and retrieval.
D	University of Pittsburgh	Mapping Brain Architecture and Processes Supporting Experience Based Cognition	Walter Schneider	The Pittsburgh team is conducting neuroimaging research to understand how memories are distributed in the temporal lobe and how processes in the frontal lobe and amygdala interact with those representations.
D	University of Southern California / ISI	Learning Generalized Image Schemas for Transfer (L-GIST)	Carole Beal	Rather than creating a model of memory that represents every detail of an observed event, the USC/ISI team is focusing on developing a more human-like model of memory in which the “gist” of an observed action is represented in memory.